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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,977	09/30/2003	Jeffrey Douglas Brown	AUS920030611US1	4952

7590 02/07/2008
Gregory W. Carr
670 Founders Square
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EXAMINER

GREY, CHRISTOPHER P

ART UNIT	PAPER NUMBER
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2616

MAIL DATE	DELIVERY MODE
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02/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/674,977	Applicant(s) BROWN ET AL.	
	Examiner Christopher P. Grey	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. **Claim 15-16 are objected to due to a lack of antecedent basis in the specification of the current application. The specification has no support for a computer program product.**

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Regarding claim 10, the phrase "can" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 15-16 are rejected under 35 USC 101, as the claimed invention is directed to non-statutory subject matter. The program product is non statutory subject matter, as it can be a piece of paper or software.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 10 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Bly (US 20040042399)

Claim 10 Bly discloses a plurality of distributed bus request queue managers at least some of which include load shaper portions (**see fig 4**) operable to establish separate class identified queues (**para 0016 and 0019**) having priority over best effort data packet queues (**para 0038, best effort**); and

Bly discloses BMC (Bandwidth Management Controller) operable to distribute base tokens to said load shaper requesting (**para 0043-0044**) same whereby a plurality of distributed sources can share a common class allocation of guaranteed BW in accessing a common resource. (**see fig 1, where a plurality of streams are**

guaranteed BW).

Claim 11 Bly discloses communication path utilization monitoring means; and standby means, operating in conjunction with said BMC and said communication path utilization monitoring means, to increase BW for at least some classes (**Para 0044**) above the guaranteed BW by distributing standby tokens (**additional tokens allow the total BW to exceed the minimum BW as disclosed in para 0029**), in addition to the base tokens, when the communication path is under-utilized (**para 0039, taking advantage of unused BW, and para 0044, where credit is added**).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bly et al. (US 20040042399) in view of Fijolek et al. (US 6553568), hereinafter referred to as Fijolek.

Claim 1 Bly discloses a load shaping means (**fig 4, 34, shaping engine dedicated for shaping incoming traffic**).

Bly discloses incoming data comprising a class of device and or application (**para 0016, classify traffic**)

Bly discloses authorizing to transmit data up to at least a given minimum bandwidth in a given operational time period (**para 0028, where the shaper allows BW allocation, and para 0029, where a minimum rate is allocated**).

Bly discloses a BMC operable to maintain a table of BW (Bandwidth) authorized for a class and further operable (**fig 4, 50 BW allocation table**), in response to each request from one of said load shaping means (fig 8, 84), to supply at least one more token for permitting at least one further data packet to be transmitted at least up to said BW authorized for each given class (**fig 8, 86**).

Bly does not specifically disclose data packet communication path requests from one or more managed devices.

Fijolek discloses data packet communication path requests from one or more managed devices (**fig 8, 168 and Col 16 lines 8-18**).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the traffic shaping as disclosed by Bly, so that at initialization, a request is being sent from the source of the data being transmitted. The motivation for this modification is to provide a reliable transport facility.

Claim 2 Bly discloses communication path usage monitoring means operable to permit said BMC to supply tokens to requesting load shaping means that exceed the class authorized BW, for a given operational period, when the communication path is being utilized at less than a given percentage of capacity (**para 0039, sharing allocation of the burst group, and taking advantage of unused credit**).

6. Claims 3, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bly (US 20040042399) in view of Agrawal et al. (US 7006440), hereinafter referred to as Agrawal

Claim 3 Bly discloses maintaining a compilation of information as to classes of data sources authorized to have priority in a given time period of operation (**fig 4, 50 and para 0025**) along with authorized minimum BW (**Bandwidth**) for each class and allowable additional standby BW for each class (**para 0028, updating shaping queue with bandwidth tokens, also classes are defined by para 0016**).

Bly disclose the request being for at least one additional transmission token from a centralized controller having access to said compilation of information (**para 0043**), as each data packet is placed in a unique class queue (**para 0016 and burst group queues**), corresponding to said class ID, to be transmitted; providing additional transmission tokens, as requested, for each authorized class (**para 0028**), up to the total of authorized minimum BW and presently allowable standby BW (**para 0029, minimum and max rates**); and adjusting allowable standby BW for each class as an inverse function of present total communication path utilization (**para 0029, table adjusted in accordance with rates**) for both priority and best efforts data packets (**para 0038, high precedence equivalent to priority and best effort**).

Bly does not specifically disclose a class ID.

Agrawal discloses a class ID (**Col 5 lines 18-27**).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine within the packet header, a class ID identifying the class of the

queues being considered. The motivation for this combination is to implement a class based queuing structure (abstract).

Claim 4 Bly discloses normal maintaining at least a predetermined minimum BW (para 0029, min rate) for all best efforts data packets queued for transmission (para 0038, best effort, also see Agrawal Col 6 for info on BE).

Claim 7 Bly discloses BMC (Bandwidth Management Controller) means interconnected to said shaper means for managing base tokens and standby tokens (fig 4 and para 0043-0044, where the claim does not define any difference between standby and base tokens).

Bly also discloses shaper means (fig 4, shaping engine).

Bly does not specifically disclose shaper means for comparing payload class against class restriction status;

Agrawal discloses shaper means for comparing payload class against class restriction status (fig 5, where for a specific class of incoming data, a shaper, 92 compares/identifies whether a drop or pass signal equivalent to a class restriction is present, and shaping is performed accordingly).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the shaping means as disclosed by Bly, so as to receive both a shaping signal and incoming packets as disclosed by fig 5 of Agrawal. The motivation

for this modification is a fair technique for dropping packets in class based queuing (**Col 2 lines 26-27**).

7. Claims 5, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bly (US 20040042399) in view of Agrawal et al. (US 7006440), hereinafter referred to as Agrawal in further view of Hosein (US 6570847)

Claims 5 and 16 Bly discloses providing separate data path transmission queues (see **fig 4, 44-47 and para 0021**), of source initiated data packets, within each of a plurality of multiplexed communication path queue managers (**fig 1, 12, 14 and 16 and para 0020**), for best efforts data packets (**para 0038**) and each separately identified (Col 7 line 5-6, packet header which contains a destination and source address) and authorized class of managed data sources (para 0016), the BW (Bandwidth) of each class being centrally controlled (**para 0028, where a shaping engine control allocated BW**);

Bly discloses managing the bandwidth allowed in a given operational time period by supplying an additional class specific token from a BMC (**para 0043-0044**) to a requesting path queue manager to replace a given class token used by said path queue manager when placing a managed source data packet in queue for transmission (**para 0042-0044, where the additional tokens is used as additional bandwidth for the allocated queue, and may replace whatever BW credit/token is already used within that queue**), additional class specific tokens being supplied up to a total limit of

authorized and standby values maintained by said BMC for each operational time period **(see fig 6, which shows the standby tokens mapped to the respective queues);**

Bly does not specifically disclose the data packets each separately identified classes. Bly also does not disclose adjusting said standby values downwardly as a function of detected congestion in said multiplexed communication path

Agrawal discloses a class ID **(Col 5 lines 18-27).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine within the packet header, a class ID identifying the class of the queues being considered. The motivation for this combination is to implement a class based queuing structure (abstract).

The combination of Bly and Agrawal do not specifically disclose adjusting said standby values downwardly as a function of detected congestion in said multiplexed communication path.

Hosein discloses adjusting said standby values downwardly as a function of detected congestion in said multiplexed communication path **(Col 3 lines 1-3, regulating the rate of traffic using tokens and Col 4 lines 16-33, where a an STP regulates and adds tokens to the token bank of the switches).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention was disclosed to modify the combined teachings of Bly and Agrawal, so that the addition of tokens is dependent on a regulated rate as disclosed by Hosein. The motivation for this modification is to regulate traffic avoiding overloading **(see background of invention).**

8. Claims 6, 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bly (US 20040042399) in view of Hosein (US 6570847)

Claim 6 Bly discloses BMC (Bandwidth Management Controller) means operable to issue requested class specific base and standby tokens (**para 0043-0044, where the claim does not define any difference between standby and base tokens**).

Bly discloses a plurality of load shaper means (**fig 1, 12, 14 and 16 which each contain a shaping means**), connected to a payload transport network (**para 0002, network**) for queuing both best effort (**para 0038**) and managed class specific data packets in separate queues for network transport (**para 0016 for classifying data into groups; and para 0019, for placing these groups of classified data into queues**).

Bly discloses class specific queuing means, comprising a part of at least some of said load shaper means, for requesting a replacement class specific token (**para 0030, where the queue requests credit**), as each token is used in connection with placing a data packet in queue for transmission over said transport network (**fig 8, 90**).

Bly does not specifically disclose the standby tokens being a function of transport network congestion (**Col 3 lines 1-3, regulating the rate of traffic using tokens and Col 4 lines 16-33, where a an STP regulates and adds tokens to the token bank of the switches**).

Hosein discloses the standby tokens being a function of transport network congestion (**Col 3 lines 1-3, regulating the rate of traffic using tokens and Col 4 lines 16-33, where a an STP regulates and adds tokens to the token bank of the switches**).

It would have been obvious to one of the ordinary skill in the art at the time of the invention was disclosed to modify the teachings of Bly, so that the addition of tokens is dependent on a regulated rate as disclosed by Hosein. The motivation for this modification is to regulate traffic avoiding overloading (**see background of invention**).

Claim 8 Bly discloses maintaining a table of base and standby BWs available for each of a plurality of managed source classes (**see fig 6**);

Bly does not specifically disclose adjusting the presently allowable BW as a function of communication path congestion.

Hosein discloses adjusting the presently allowable BW as a function of communication path congestion (**Col 3 lines 1-3, regulating the rate of traffic using tokens and Col 4 lines 16-33, where a an STP regulates and adds tokens to the token bank of the switches**)..

It would have been obvious to one of the ordinary skill in the art at the time of the invention was disclosed to modify the teachings of Bly, so that the addition of tokens is dependent on a regulated rate as disclosed by Hosein. The motivation for this modification is to regulate traffic avoiding overloading (**see background of invention**).

Claim 9 Bly does not specifically disclose the standby BW available is exponentially reduced when congestion is detected; and the available standby BW is linearly increased in a periodic manner when the communication path is not congested.

Hosein discloses the standby BW available is exponentially reduced when congestion is detected; and the available standby BW is linearly increased in a periodic manner when the communication path is not congested (**Col 4 lines 16-33, where the STP adds tokens to the bank to achieve a requested rate, and token bank is incremented, while the tokens from the STP or the BW allocation table as disclosed by Bly are reduced**).

It would have been obvious to one of the ordinary skill in the art at the time of the invention was disclosed to modify the teachings of Bly, so that the addition of tokens is dependent on a regulated rate as disclosed by Hosein. The motivation for this modification is to regulate traffic avoiding overloading (**see background of invention**).

9. Claims 12, 13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bly (US 20040042399) in view of lee et al. (US 7224671), hereinafter referred to as Lee.

Claim 12 and 15 Bly discloses maintaining a centralized count of class specific data packet tokens distributed (**see fig 6, which depicts the amount of tokens mapped to each queue**) where each data packet token represents a definable portion of authorized BW (see claim 1, BW credit);

Bly discloses requesting an additional replacement token from a centralized token source (**para 0043, credit is requested**) interconnected with means for maintaining the centralized count when a data packet from a given one of said

distributed sources is placed in queue for transfer on said communication path (para 0012 discloses a counter; and

Bly does not specifically disclose supplying additional replacement token(s) upon request until the authorized BW is used up in a given operational time period.

Lee discloses supplying additional replacement token(s) upon request until the authorized BW is used up in a given operational time period (Col 10 lines 64-Col 11 line 3, where additional bandwidth is allocated until it runs out and max is reached).

It would have been obvious to one of the ordinary skill in the art at the time of the invention was disclosed to combine the max BW allocation register as disclosed by Lee to the credit allocation unit as disclosed by Bly. The motivation for this combination is to control the rate that data is transferred, which ultimately controls congestion in the system.

Claim 13 Bly discloses maintaining an allowable standby count for each authorized class wherein the standby count (**see fig 6**) is dynamically adjusted (para 0038)

Bly does not specifically disclose adjustment in accordance with communication path congestion; and supplying additional replacement token(s) upon request until both the authorized BW token count and the standby count, for the class of token requested, are used up in a given operational time period.

Lee discloses adjustment in accordance with communication path congestion (**Col 11 lines 1-3, where Lee stops/adjusts BW allocation when a max threshold/congestion threshold is reached**); and supplying additional replacement token(s) upon request until both the authorized BW token count and the standby count,

for the class of token requested, are used up in a given operational time period (**Col 10 lines 64-Col 11 line 3, where additional bandwidth is allocated until it runs out and max is reached**).

It would have been obvious to one of the ordinary skill in the art at the time of the invention was disclosed to combine the max BW allocation register as disclosed by Lee to the credit allocation unit as disclosed by Bly. The motivation for this combination is to control the rate that data is transferred, which ultimately controls congestion in the system.

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal (US 7006440) in view of Hosein (US 6570847) in further view of Lee et al. (US 7224671), hereinafter referred to as Lee.

Claim 14 Agrawal discloses assigning a unique class identity (Col 5 lines 18-22) and a designated allowable BW from said assignment entity (Col 5 lines 28-37); supplying said assigned unique class identity and designated allowable BW from said assignment entity to load shaping entities interconnected to said communication path (see fig 2, 74 to 79), by said assignment entity, of acceptance of said requested BW by said first entity (**fig 5, where a pass indicates an acceptance**);

Agrawal discloses sending data packets from said first entity to said load shaping entity (**see ingress side of fig 2**) for transmission on a bus attended by said load shaping entity, each of said data packets providing class priority information including said unique identity (**Col 5 lines 18-22**);

Agrawal discloses permitting transmission of data packets over said bus by unmanaged entities when no managed BW entity data packets await transmission (**Col 6 lines 31-54, where the claim does not define managed and unmanaged entities, where as broadly interpreted best effort entities are equivalent to an unmanaged entity, as the BW allocated to this from of traffic is allocated after all other pending traffic of higher priorities is attended to).** .

Agrawal does not specifically disclose submitting a request, from a BW managed first entity, for a given bandwidth to an assignment entity. Agrawal also does not disclose allocating a given number N of time slots commensurate with said designated BW, for use over a predetermined number of time slots, for use by said first entity for as long as said first entity continues to supply said data packets for transmission.

Hosein discloses submitting a request, from a BW managed first entity, for a given bandwidth to an assignment **entity (Col 3 lines 1-5, a message for the desired rate/BW);**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system as disclosed by Agrawal, so that a message from an entity is transmitted in order to specify the rate at which data should be controlled. The motivation for this modification is to control the rate/BW in accordance with a specified rate determined by an entity.

The combination of Agrawal and Hosein do not specifically disclose allocating a given number N of time slots commensurate with said designated BW, for use over a

predetermined number of time slots, for use by said first entity for as long as said first entity continues to supply said data packets for transmission.

Lee discloses allocating a given number N of time slots commensurate with said designated BW, for use over a predetermined number of time slots (**Col 10 lines 34-37**), for use by said first entity for as long as said first entity continues to supply said data packets for transmission.

It would have been obvious to one of the ordinary skill in the art at the time of the invention was disclosed to modify the combined teachings of Agrawal and Hosein, so that allocation of BW is associated with given timeslots as disclosed by Lee. The motivation for this modification is to control a rate as disclosed by lee.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 10AM-7:30PM.

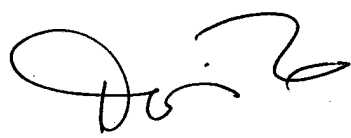
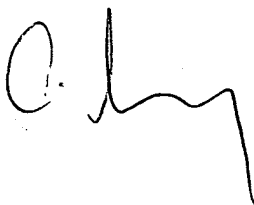
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on (571)272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Christopher Grey
Examiner
Art Unit 2616



DO NOT
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